APPENDIX D
GLOSSARY

Terms in this glossary are defined based on the context in which they are used in this EIS.

100-year flood A flood event of such magnitude it occurs, on average, every 100 years (equates to a 1 percent probability of occurring in any given year).

500-year flood A flood event of such magnitude it occurs, on average, every 500 years (equates to a 0.2 percent probability of occurring in any given year).

abnormal condition Any deviation from normal conditions.

absorbed dose The energy imparted by ionizing radiation per unit mass of irradiated material. The unit of absorbed dose is the rad and the gray.

accelerator produced radioactive material Radioactive material that was produced in a charged particle accelerator.

acceptable ambient concentration for a carcinogen (AACC) Ambient air quality standards based on the probability of developing excess cancers over a 70-year lifetime exposure to one microgram per cubic meter ($1\mu g/m^3$) of a given carcinogen and expressed in terms of a screening emission level or an acceptable ambient concentration for a carcinogenic toxic air pollutant.

acceptable ambient concentration for a noncarcinogen (AAC) Ambient air quality standards based on occupational exposure limits for airborne toxic chemicals expressed in terms of a screening emission level or an acceptable ambient concentration for a noncarcinogenic toxic air pollutant.

accident An unplanned sequence of events that results in undesirable consequences.

actinide Any of a series of chemically similar, mostly synthetic, radioactive elements with atomic numbers ranging from actinium-89 through lawrencium-103.

acute exposure The absorption of a relatively large amount of hazardous material (or intake of hazardous material) over a short period of time.

adsorption The attraction and adhesion of ions or molecules in a gaseous or aqueous state to a solid surface.

air pollutant Any substance including, but not limited to, dust, fumes, gas, mist, odor, smoke, vapor, pollen, soot, carbon, or particulate matter that is regulated.

air quality The general condition of the air resources, usually expressed in terms of attainment of ambient air quality standards.

air quality concentration The specific measurement (or estimate) in the ambient air of a particular air pollutant at any given time.

air quality criteria Regulatory limits of air pollutants in ambient air designated by the varying amounts of pollution and lengths of exposure designed to limit the potential for specific adverse effects to health and welfare (see air quality standard).

air quality standard The prescribed level of a pollutant in the outside air that cannot be exceeded during a specified time in a specified geographical area. Established by both Federal and State governments (see air quality criteria).

alluvium Sedimentary material deposited by flowing water, as in a river bed or delta.

alpha-emitter A radioactive substance that decays by releasing an alpha particle.

alpha low-level mixed waste (alpha LLMW) Waste that was previously classified as transuranic mixed waste but has a transuranic concentration lower than the currently established limit for transuranic waste. Alpha LLMW requires additional controls and special handling. This waste stream cannot be accepted for onsite disposal under the current waste acceptance criteria; therefore, it is special-case waste.

alpha-particle A positively charged particle ejected spontaneously from the nuclei of some radioactive elements. It is identical to a helium nucleus that has a mass number of 4 and an electrostatic charge of +2.

ambient air That portion of the atmosphere outside of buildings to which the general public has access.

applicable or relevant and appropriate requirements Requirements, including cleanup standards, standards of control, and other substantive environmental protection requirements and criteria for hazardous substances as specified under Federal and State law and regulations, that must be met when complying with the *Comprehensive Environmental Response, Compensation, and Liability Act* of 1980 (CERCLA).

aquifer A body of rock or sediment sufficiently permeable to conduct groundwater and to yield significant quantities of water to wells and springs.

as low as reasonably achievable (ALARA) A process by which a graded approach is applied to maintaining dose levels to workers and the public and releases of radioactive materials to the environment as low as reasonably achievable.

attainment area Any area which is designated, pursuant to 42 U.S.C. Section 7407(d) of the *Clean Air Act*, as having ambient concentrations equal to or less than national primary or secondary ambient air quality standards for a particular air pollutant or air pollutants.

atomic number The number of positively charged protons in the nucleus of an atom and the number of electrons on an electrically neutral atom.

background level The value assigned to the quantity of particulate or gaseous material in ambient air which originates from natural sources uninfluenced by the activity of man.

background radiation Radiation from cosmic sources, naturally occurring radioactive materials, including radon (except as a decay product of source or special nuclear material), and global fallout as it exists in the environment from the testing of nuclear explosive devices.

basalt A general term for dark-colored, fine-grained igneous rock. Commonly extrusive and composed primarily of calcic plagioclase and pyroxene minerals.

baseline A quantitative expression of conditions, costs, schedule, or technical progress to serve as a base or standard for measurement; the established plan against which the status of resources and the progress of a program can be measured.

below regulatory concern A definable amount of low-level waste that is sufficiently small that it can be deregulated with minimal risk to the public.

best available control technology (BACT) An emission standard (including fuel cleaning or treatment or innovative fuel combination techniques) for control of such contaminants. BACT shall be determined on a case-by-case basis, taking into account energy, environmental and economic impacts, and other costs, and shall be at least as stringent as any applicable Sections of 40 CFR Part 60 and 40 CFR Part 61. If an emissions standard is infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed as BACT.

beta-emitter A radioactive substance that decays by releasing a beta particle.

beta-particle A charged particle emitted from a nucleus during radioactive decay, with a mass equal to 1/1837 that of a proton. A negatively charged beta particle is identical to an electron. A positively charged beta particle is called a positron.

beyond design basis accidents Accidents of the same type as a distinct design basis accident (fire, earthquake, and so forth) but defined by parameters that exceed in severity the parameters defined for the distinct design basis accident.

bound To estimate or describe an upper limit on a potential environmental consequence when uncertainty exists.

bounding That which represents the maximum reasonably foreseeable event or impact. All other reasonably foreseeable events or impacts would have fewer and/or less severe environmental consequences.

buffer zone An area designed to separate. Specifically, the portion of a disposal site that is controlled by the licensee and that lies under and between the disposal units and the boundary of the site.

by-product material (a) Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident to the process of producing or utilizing special nuclear material, and (b) the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content [*Atomic Energy Act* 11(e)]. By-product material is exempt from regulation under the *Resource Conservation and Recovery Act* (RCRA).

certification plan See waste certification plan.

certified waste Waste that has been confirmed to comply with the waste acceptance criteria of the treatment, storage, or disposal facility for which it is intended under an approved waste certification program.

certifying authority or official An organization or person outside the waste generator line organization who is responsible for certifying that the waste being sent to a treatment, storage, or disposal facility meets the requirements of the receiving facility's waste acceptance criteria.

characterization The determination of waste composition and properties, whether by review of process knowledge, nondestructive examination or assay, or sampling and analysis, generally done for the purpose of determining appropriate storage, treatment, handling, transportation, and disposal requirements.

chronic exposure The absorption of hazardous material (or intake of hazardous materials) over a long period of time (for example, over a lifetime).

Class I area Under the *Clean Air Act*, any Federal land that is classified or reclassified "Class I." The designation applies to pristine areas, such as national parks and wilderness areas, where substantial growth is effectively precluded in order to avoid any degradation of the air quality.

clean waste Waste products that are neither radioactive nor hazardous but require appropriate disposal in a solid waste landfill.

closure Deactivation, stabilization, and surveillance of a waste management unit, landfill, or other facility. Closure often refers to the process under RCRA involving the preparation and signing of a Closure Plan.

collective dose The sum of the individual doses received in a given period of time by a specified population from exposure to a specified source of radiation. The units of collective dose are person-rem.

collective effective dose equivalent The product of the effective dose equivalent (rem) to those exposed and the number of persons in the exposed population. The units are in person-rem.

co-located workers Workers in a fixed population outside the day-to-day process safety management controls of a given facility area. In practice, this fixed population is normally the workers at an independent facility area located some distance from the reference facility area.

commercial waste management facility A facility located off U.S. Department of Energy (DOE) controlled property that is not managed by DOE to which DOE sends waste for treatment, storage, and/or disposal.

committed dose equivalent (H_{50}) The dose equivalent to organs or tissues of reference that will be received from an intake of radioactive material by an individual during the 50-year period following the intake. The International Commission on Radiological Protection defines this as the committed equivalent dose.

committed effective dose See committed effective dose equivalent.

committed effective dose equivalent (CEDE) ($H_{E,50}$) The sum of the products of the weighting factors applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to these organs or tissues. The International Commission on Radiological Protection defines this as the committed effective dose.

***Comprehensive Environmental Response, Compensation, and Liability Act* of 1980 (CERCLA)** A Federal law (also known as "Superfund") that provides a comprehensive framework to deal with past or abandoned hazardous materials. CERCLA provides for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment that could endanger public health, welfare, or the environment, as well as the cleanup of inactive hazardous waste disposal sites. CERCLA has jurisdiction over any release or threatened release of any "hazardous substance" to the environment. Under CERCLA, the definition of "hazardous" is much broader than under RCRA, and the hazardous substance need not be a waste. If a site meets the CERCLA requirements for designation, it is ranked along with other "Superfund" sites and listed on the National Priorities List. This ranking and listing is the Environmental Protection Agency's (EPA) way of determining which sites have the highest priority for cleanup.

committed equivalent dose See committed dose equivalent.

confinement General control of contaminants through engineering design, such as heating and ventilation systems that use high-efficiency particulate air filters to remove contaminants before discharge to the atmosphere. Such systems may break down or experience a loss of electric power that would "lose confinement" temporarily. This may require evacuation of the structure but would not lead to significant consequences to workers or a significant release.

contact-handled waste Packaged waste whose external surface dose rate does not exceed 200 millirem per hour.

containerization The process of placing radioactive or other hazardous material in a confining receptacle for storage or transport. For spent nuclear fuel, this is called canning.

containment The provision of a gastight shell or other enclosure around a reactor to confine fission products that otherwise might be released into the atmosphere in the event of an accident.

contamination The deposition of unwanted pollutants on the surfaces of structures, areas, objects, or personnel.

contingency plan A document setting out an organized, planned, and coordinated course of action to be followed in case of unanticipated events such as fire, explosion, or other events that may release toxic chemicals, hazardous wastes, or radioactive materials to threaten human health or the environment. The goal of the contingency plan is the containment or mitigation of the impacts resulting from the event.

continuity of operations Activities that include developing strategic and long-range waste management plans, surveillance and maintenance of facilities and equipment, waste certification, proper training programs for personnel, and record/information administration.

control equipment Any method, process or equipment which removes, reduces, or renders less noxious, pollutants discharged into the environment.

criteria air pollutant Under the *Clean Air Act*, and the State of Idaho air quality regulations, any air pollutant for which there is a State or national ambient air quality standard.

cumulative impact The impact on the environment which results from incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impact can result from individually minor but collectively significant actions taking place over a period of time.

curie (Ci) The basic unit used to describe the intensity of radioactivity in a sample of material. The curie is equal to 37 billion disintegrations per second, which is approximately the rate of decay of 1 gram of radium. A curie is also a quantity of any radionuclide that decays at a rate of 37 billion disintegrations per second.

decay, radioactive The decrease in the amount of any radioactive material with the passage of time, due to the spontaneous emission from the atomic nuclei of either alpha or beta particles, often accompanied by gamma radiation (see half-life; radioactive).

decommissioning The process of removing a facility from operation, followed by decontamination, entombment, dismantlement, or conversion to another use.

decontamination The actions taken to reduce or remove substances that pose a substantial present or potential hazard to human health or the environment, such as radioactive contamination from facilities, soil, or equipment by washing, chemical action, mechanical cleaning, or other techniques.

deep dose equivalent Applies to the whole body exposure and is the dose equivalent at a depth of 1 cm (1000 mg/cm^2).

defense waste Radioactive waste from any activity performed in whole or in part in support of the DOE atomic energy defense activities; excludes waste from DOE nondefense activities or waste under the purview of the U.S. Nuclear Regulatory Commission or generated by the commercial nuclear power industry.

delta E A parameter used to define color shift in visual impact modeling. It is the primary basis for determining perceptibility of plume visual impact in screening analyses.

design basis accident Accidents that are postulated for the purpose of establishing functional requirements for safety significant structures, systems, components, and equipment.

diffusion The process by which a pollutant plume is diluted by turbulent eddies.

discharge Under principles of hydrogeology, the amount of water passing through (or leaving) a given cross-sectional area in a given period of time. Under the *Clean Water Act*, discharge of a pollutant, which includes any addition of any pollutant or combination of pollutants to waters of the United States from any point source. This definition includes additions of pollutants into waters of the United States from: surfaced runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

dispersion In air pollution, the process of transport and diffusion of airborne contaminants in the atmosphere.

disposal Emplacement of waste in a manner that ensures protection of human health and the environment within prescribed limits for the foreseeable future with no intent of retrieval and that requires deliberate action to regain access to the waste.

disposal facility A facility or part of a facility at which hazardous waste is intentionally placed into or on any land or water and at which waste will remain after closure.

dissolution The ability of water to take a substance into solution.

DOE orders Requirements internal to the DOE that establish DOE policy and procedures, including those for compliance with applicable laws.

DOE site boundary A geographic boundary within which public access is controlled and activities are governed by the DOE and its contractors, not by local authorities. Based on the definition of exclusion zone, a public road traversing a DOE site is considered to be within the DOE site boundary if DOE or the site contractor has the capability to control the road at any time necessary.

dose (or radiation dose) A generic term that means absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, or total effective dose equivalent, as defined elsewhere in this glossary.

dose conversion factor Any factor that is used to change an amount or concentration of radioactivity to dose in the units of concern. Frequently used as the factor that expresses the committed effective dose equivalent to a person from the intake (inhalation or ingestion) of a unit activity of a given radionuclide.

dose equivalent The product of the absorbed dose in tissue, quality factor, and all other necessary modifying factors at the location of interest. The unit of dose equivalent is the rem. The International Commission on Radiation Protection defines this as the equivalent dose.

dose rate The radiation dose delivered per unit of time; measured, for example, in rem per hour.

dry storage Storage of spent nuclear fuel in environments where the fuel is not immersed in liquid for purposes of cooling and/or shielding.

earthquake magnitude A measure of earthquake size, determined by taking the common logarithm (base 10) of the largest ground motion recorded during the arrival of a seismic wave type and applying a standard correction for distance to the epicenter. Three common types of magnitude are Richter (or local) (M_L), P body wave (m_b), and surface wave (M_s).

effective dose See effective dose equivalent.

effective dose equivalent (EDE) The sum of the products of the dose equivalent to the organ or tissue and the weighting factors applicable to each of the body organs or tissues that is irradiated. It includes the dose from radiation sources internal and/or external to the body and is expressed in units of rem. The International Commission on Radiation Protection defines this as the effective dose.

effluent The wastewater, treated or untreated, that flows out of a facility. Generally, effluent is discharged into surface waters.

emission (air) Any controlled or uncontrolled release or discharge into the outdoor atmosphere of any air pollutants or combination thereof. Emission also includes any release or discharge of any air pollutant from a stack, vent, or other means into the outdoor atmosphere that originates from an emission unit.

emission standard A permit or regulatory requirement established by the Idaho Department of Health and Welfare, or U.S. Environmental Protection Agency, which limits the quantity, rate, concentration of emissions, or impacts on a continuous basis, including any requirements which limit opacity, prescribe equipment, set fuel specifications, or prescribe operation or maintenance procedures to assure continuous emission control.

engineered barriers Manmade components of a waste management system or facility designed to prevent or impede the release of radionuclides or other waste material into the biosphere. This includes the waste form, radioactive waste containers, and other materials placed over and around such containers, and physical features of the system or facility.

environmental monitoring The process of sampling and analysis of environmental media in and around a facility being monitored for the purpose of (a) confirming compliance with performance objectives and (b) early detection of any contamination entering the environment to facilitate timely remedial action.

environmental restoration Cleanup and restoration of sites and decontamination and decommissioning of facilities contaminated with radioactive and/or hazardous substances during past production, accidental releases, or disposal activities.

environmental restoration program A DOE subprogram concerned with all aspects of assessment and cleanup of both contaminated facilities in use and of sites that are no longer a part of active operations. Remedial actions, most often concerned with contaminated soil and groundwater, and decontamination and decommissioning are responsibilities of this program.

eolian Applied (a) to deposits arranged by the wind, (b) to the erosive action of the wind, and (c) to deposits which are due to the transporting action of the wind.

equivalent dose See dose equivalent.

existing facilities Facilities that are projected to exist as of the Record of Decision for this EIS, scheduled for June 1995.

exposure Being exposed to ionizing radiation or to hazardous material. Alternatively, a measure of the ionization produced in air by X or gamma radiation; the unit of exposure in air is the roentgen.

external accident Accidents initiated by manmade energy sources not associated with operation of a given facility. Examples include airplane crashes, induced fires, transportation accidents adjacent to a facility, and so forth.

external dose That portion of the dose equivalent received from radiation sources outside the body.

facility (a) Any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft; or (b) any site or area where a hazardous substance has been deposited, stored, disposed of, placed, or otherwise come to be located.

facility area The area within the Idaho National Engineering and Environmental Laboratory (INEEL) boundary immediately surrounding a facility or group of facilities that functions under process safety management programs and a common emergency response plan. This definition covers any building within such an area regardless of whether it is dedicated to production, waste handling, or administrative issues; for example, an office building, a cafeteria, a production facility, a machine shop, and a waste handling facility all contained within a common boundary. If programs such as radiation protection, training, auditing, and evaluation are an integral part of safety management at each facility and emergency response plans cover the potential responses of individuals at all buildings, then the collection of buildings constitutes a facility area. All personnel in the area are facility workers, not co-located workers.

facility area boundary The geographic boundary of an area controlled on a daily basis by process safety management and a common emergency response plan.

facility security plan In the context of waste management, a security plan is one that provides the measures required by law, regulation, or good judgment for prevention of unknowing or unauthorized entry into a treatment, storage, or disposal facility; or operation of facility equipment and systems; or access to waste material or spent nuclear fuel.

facility worker Any worker whose day-to-day activities are controlled by process safety management programs and a common emergency response plan associated with a facility or facility area. This definition includes any individual within a facility/facility area or its 0.4-mile exclusion zone. This definition can also include those transient individuals or small populations outside the exclusion zone but inside the radius defined by the maximally exposed co-located worker if reasonable efforts to account for such people have been made in the facility or facility area emergency plan. For facility accident analyses, the facility worker is defined as an individual located 100 meters (328 feet) downwind of the facility location where an accidental release occurs.

feasibility study A step in the environmental restoration process specified by CERCLA. The objectives are to identify the alternatives for remediation and describe a remedial action that satisfies applicable or relevant appropriate requirements for mitigating confirmed environmental contamination. The feasibility study presents a series of specific engineering or construction alternatives for cleaning up a site; for each alternative presented, there will be a detailed analysis of the costs, effects, engineering feasibility, and environmental impacts. The feasibility study is based on information provided in the remedial investigation. Successful completion of a feasibility study should result in a decision (Record of Decision) selecting a remedial action alternative and the subsequent development of a remedial design for implementation of the selected remedial action.

***Federal Facility Compliance Act* (FFCAct)** Federal law signed in October 1992 amending RCRA. The objective of the FFCAct is to bring all Federal facilities into compliance with applicable Federal and State hazardous waste laws, to waive Federal sovereign immunity under those laws, and to allow the imposition of fines and penalties. The law also requires the U.S. Department of Energy to submit an inventory of all its mixed waste and to develop a treatment plan for mixed wastes.

Federal Facility Agreement and Consent Order A binding agreement, negotiated pursuant to Section 120 of CERCLA, signed by DOE, EPA Region X, and the State of Idaho, to coordinate cleanup activities at the INEEL. The Federal Facility Agreement and Consent Order and its Action Plan outline the remedial action process that will encompass all investigation of hazardous substance release sites. The Federal Facility Agreement and Consent Order superseded the Consent Order and Compliance Agreement.

Federal land manager The Secretary of the Federal department with authority over any Federal lands in the United States.

field offices An administrative division of the DOE that operates facilities that are in its jurisdiction.

fiscal year (FY) The time frame specified by any public or private entity to separate one year's financial (fiscal) activities from the next year's. The 1994 Federal Fiscal Year (FY 1994) began on October 1, 1993, and ended on September 31, 1994.

fissile material Although sometimes used as a synonym for fissionable material, this term has acquired a more restricted meaning; namely, any material fissionable by thermal (slow) neutrons. The three primarily fissile materials are uranium-233, uranium-235, and plutonium-239.

fission The splitting of a nucleus into at least two other nuclei and the release of a relatively large amount of energy. Two or three neutrons are usually released during this type of transformation.

fission products The nuclei (fission fragments) formed by the fission of heavy elements, plus the nuclides formed by the fission fragments' radioactive decay.

fissionable material Commonly used as a synonym for fissile material, the meaning of this term has been extended to include material that can be fissioned by fast neutrons, such as uranium-238.

fluorides Gaseous or solid compounds containing fluorine emitted into the air from a number of industrial processes.

free liquid Liquid that is not absorbed into host material such that it could readily separate from the solid portion of a waste under ambient temperature and pressure and spill or drain from its container.

fugitive dust Dust that is stirred up and released into the atmosphere during construction activities. Fugitive emissions composed of particulate matter.

fugitive emissions Those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

gamma-emitter A radioactive substance that decays by releasing gamma radiation.

gamma ray (gamma radiation) High-energy, short wavelength electromagnetic radiation (a packet of energy) emitted from the nucleus. Gamma radiation frequently accompanies alpha and beta emissions and always accompanies fission. Gamma rays are very penetrating and are best stopped or shielded against by dense materials, such as lead or uranium. Gamma rays are similar to X-rays, but are usually more energetic.

generator (generation) Organizations of the DOE that produce waste.

geologic repository A system that is intended to be used for, or may be used for, the disposal of radioactive waste or spent nuclear fuel in excavated geologic media. A geologic repository includes (a) the geologic repository operations area, and (b) the portion of the geologic setting that provides isolation. A near-surface disposal area is not a geologic repository.

geothermal energy The energy available from natural sources of heat, such as hot springs and near-surface heat sources in volcanically active areas.

graded approach A process by which the level of analysis, documentation, and actions necessary to comply with a requirement are commensurate with (a) the relative importance to safety, safeguards, and security; (b) the magnitude of any hazard involved; (c) the life-cycle stage of a facility; (d) the programmatic mission of a facility; (e) the particular characteristics of a facility; and (f) any other relevant factor.

graphite fuel Fuel that consists of small pellets of highly enriched uranium (HEU)-carbide fuel surrounded by protective layers of other carbide compounds. These pellets are dispersed in much larger graphite structures for handling and neutron moderation.

greater-than-Class-C waste Low-level radioactive waste that exceeds U.S. Nuclear Regulatory Commission concentration limits specified in 10 CFR 61. The DOE is responsible for the disposal of greater-than-Class-C wastes from DOE nondefense programs.

groundwater Generally, all water contained in the ground. Water held below the water table available to freely enter wells.

grouting Grouting is the process of immobilizing or fixing solid forms of waste so they can be more safely stored or disposed.

half-life The time in which half the atoms of a particular radioactive substance disintegrate to another nuclear form. Measured half-lives vary from millionths of a second to billions of years. Also called physical half-life.

hazard classification A safety classification based on potential onsite consequences. Criteria for this classification are discussed in DOE Order 5480.23 (Nuclear Safety Analysis Reports).

hazard index An indicator of the potential toxicological hazard from exposure to a particular substance. The hazard index is equal to an individual's estimated exposure divided by EPA's substance-specific reference dose.

hazardous air pollutant Any air pollutant subject to a standard promulgated under 42 U.S.C. Section 7412 or other requirements established under 42 U.S.C. Section 7412 of *the Clean Air Act*, including 42 U.S.C. Section 7412(g), (j), and (r) of the *Clean Air Act*.

hazardous chemical A term defined under the *Occupational Safety and Health Act* and the *Emergency Planning and Community Right to Know Act* as any chemical that is a physical hazard or a health hazard.

hazardous material A substance or material, including a hazardous substance, which has been determined by the U.S. Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce.

hazardous substance Any substance that when released to the environment in an uncontrolled or unpermitted fashion becomes subject to the reporting and possible response provisions of the *Clean Water Act* and CERCLA.

hazardous waste Under RCRA, a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (a) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. Source, special nuclear material, and byproduct material, as defined by the *Atomic Energy Act*, are specifically excluded from the definition of solid waste.

hazardous waste landfill A disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a pile, a land treatment facility, a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground mine, or a cave.

heavy metals Metallic elements with high atomic weights (for example, mercury, chromium, cadmium, arsenic, and lead) that can damage living things at low concentrations and tend to accumulate in the food chain.

heterogeneous Pertaining to a substance having different characteristics in different locations. A synonym is nonuniform.

high-efficiency particulate air (HEPA) filter A filter with an efficiency of at least 99.95 percent used to separate particles from air exhaust streams prior to releasing that air to the atmosphere.

high-level waste The highly radioactive waste material that results from the reprocessing of spent nuclear fuel, including liquid waste produced directly from reprocessing and any solid waste derived from the liquid that contains a combination of transuranic and fission product nuclides in quantities that require permanent isolation. High-level waste may include other highly radioactive material that the U.S. Nuclear Regulatory Commission, consistent with existing law, determines by rule requires permanent isolation.

Holocene In the geological scale of time, the more recent of the two epochs of the Quaternary period (10,000 years ago to the present); that period of time since the last ice age.

hot cell/hot cell facility A heavily shielded enclosure for handling and processing (by remote means or automatically) or storing highly radioactive materials.

hydraulic conductivity Capacity of a porous media to transport water.

hydraulic gradient The slope of the water table per unit of distance, resulting in groundwater movement.

hydrogeochemistry The study of the chemical interactions between the earth's components, including rocks, minerals, and water.

hydrogeology The study of the geological factors relating to water.

hydrology The study of water, including groundwater, surface water, and rainfall.

infiltrate Water passing from the land surface through the vadose zone into the aquifer.

intermittent surface water A stream, creek, or river which does not contain water during part or all of the year.

inadvertent intrusion The inadvertent disturbance of a disposal facility or its immediate environment by a potential future occupant that could result in loss of containment of the waste or exposure of personnel. Inadvertent intrusion is a significant consideration that shall be included either in the design requirements or waste acceptance criteria of a waste disposal facility.

incineration The efficient burning of combustible solid and liquid wastes to destroy organic constituents and reduce the volume of the waste. Incineration of radioactive materials does not destroy the radionuclides but does significantly reduce the volume of these wastes.

industrial commercial waste Material that is not subject to RCRA Subtitle C or *Atomic Energy Act* regulation. It is generated by manufacturing or industrial processes. Industrial commercial waste is also known as solid waste and is regulated by RCRA, Subtitle D.

INEEL industrial waste Industrial commercial waste generated at the INEEL is categorized as INEEL industrial waste.

institutional control The control of waste management facilities by human institutions.

Interagency Agreement See Federal Facility Agreement and Consent Order.

interim status facility See RCRA interim status facility.

interim action (CERCLA) A remedial action undertaken to clean up or contain a potential threat to human health and the environment that can or should be addressed within a short timeframe. The study associated with an interim action may be completed within an "umbrella" remedial investigation/feasibility study. Interim actions are completed on an accelerated schedule and generally deal with well-defined contamination problems that present a significant, although not immediate, threat to human health and the environment.

interim action (NEPA) An action that may be undertaken while work on a required program EIS is in progress and the action is not covered by an existing program statement. An interim action may not be undertaken unless such action: (a) is justified independently of the program; (b) is itself accompanied by an adequate EIS or has undergone other NEPA review; and (c) will not prejudice the ultimate decision on the program. Interim action prejudices the ultimate decision on the program when it tends to determine subsequent development or limit alternatives.

internal accidents Accidents that are initiated by man-made energy sources associated with the operation of a given facility. Examples include process explosions, fires, spills, criticalities, and so forth.

inversion In the atmosphere, a condition in which air temperature warms with increasing altitude.

isotope One of two or more atoms with the same number of protons, but different numbers of neutrons, in their nuclei. Thus, carbon-12, carbon-13, and carbon-14 are isotopes of the element carbon, the numbers denoting the approximate atomic weights. Isotopes have very nearly the same chemical properties, but often different physical properties (for example, carbon-12 and -13 are stable, carbon-14 is radioactive) (see also radioisotope).

Kjeldahl nitrogen A method of nitrogen analysis designed to measure nitrogen present as part of organic compounds.

lacustrine Pertaining to, produced by, or formed in a lake or lakes; growing in or inhabiting lakes.

Land Disposal Restrictions (LDRs) A RCRA program that restricts land disposal of RCRA hazardous and RCRA mixed wastes and requires treatment to promulgated treatment standards. LDRs identify hazardous wastes that are restricted from land disposal and define those limited circumstances under which an otherwise prohibited waste may continue to be land disposed.

land-use planning A decisionmaking process to determine the future or end use of a parcel of land, considering such factors as current land use, public expectations, cultural considerations, local ecological factors, legal rights and obligations, technical capabilities, and costs.

lapse In the atmosphere, a condition in which air temperature cools with increasing altitude.

less-than-90-day storage The onsite accumulation and/or storage of hazardous waste for a period of less than 90 days by a generator subject to the requirements of 40 CFR 262.34(a).

life cycle The entire time period from generation to permanent disposal or elimination of waste.

liquid metal fast breeder reactor A reactor that operates using a type of fission known as fast fission where the neutrons that are used to split the atoms are not slowed down or moderated, as is usually the case with normal fission. It creates more fissionable material than it consumes and uses liquid metal as a coolant. Liquid sodium is a common metal used to cool this type of reactor.

listed waste Under RCRA, waste listed in 40 CFR 261, Subpart D, as hazardous. Listed hazardous wastes include wastes from specific sources, nonspecific sources, and discarded commercial chemical products. These wastes have not been subjected to the toxicity characterization leaching procedure because the dangers they present are considered self-evident.

loess A homogeneous deposit consisting predominantly of silt, with subordinate amounts of very fine sand and/or clay.

long-term storage The storage of hazardous waste (a) onsite (a generator site) for a period of 90 days or greater, other than in a satellite accumulation area, or (b) offsite in a properly managed treatment, storage, or disposal facility for any period of time.

low-level waste Waste that contains radioactivity and is not classified as high-level waste, transuranic waste, or spent nuclear fuel. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as low-level waste, provided the concentration of transuranic elements is less than 100 nanocuries per gram of waste.

mafic Pertaining to or composed predominantly of the magnesian rock-forming silicates; said of some igneous rocks and their constituent minerals; synonymous with “dark minerals.”

major radionuclides The radioisotopes that together comprise 95 percent of the total curie content of a waste package by volume and have a half-life of at least 1 week. Radionuclides that are important to a facility's radiological performance assessment and/or a safety analysis and are listed in the facility's waste acceptance criteria are considered major radionuclides.

management (of spent nuclear fuel) Emplacing, operating, and administering facilities, transportation systems, and procedures to ensure safe and environmentally responsible handling and storage of spent nuclear fuel pending (and in anticipation of) a decision on ultimate disposition.

maximally exposed individual (MEI) A hypothetical individual defined to allow dose or dosage comparison with numerical criteria for the public. This individual is located at the point on the DOE site boundary nearest to the facility in question. Sometimes called maximally exposed offsite individual.

maximally exposed offsite individual A hypothetical individual defined to allow dose or dosage comparison with numerical criteria for the public. This individual is located at the point on the DOE site boundary nearest to the facility in question. Sometimes called the MEI.

maximum concentration level These are the maximum concentrations of radionuclides in water estimated to correspond to a lifetime cancer risk of 1/10,000, assuming a lifetime daily consumption of 2 liters of water. These concentrations assume radionuclides emit only one type of radiation. For nonradioactive, noncarcinogenic compounds, maximum concentration levels are based on no observable effect levels.

maximum contaminant level (MCL) Under the *Safe Drinking Water Act*, the maximum permissible concentrations of specific constituents in drinking water that are delivered to any user of a public water system that serves 15 or more connections and 25 or more people. The standards set as maximum contaminant levels take into account the feasibility and cost of attaining the standard.

meteorological classifications Categories defining various states of atmospheric turbulence (dispersion and dilution) that are used to estimate diffusion of radioactive material concentrations for accident scenarios. The criteria consider the relationship of wind speed, insolation (amount of incoming solar radiation), and cloudiness (see Brenk et al. 1983).

> **Average (50 percent) meteorology:** Average meteorological dispersion conditions; more favorable and less favorable to dispersion conditions will each occur 50 percent of the time.
>
> **Conservative (95 percent) meteorology:** Adverse meteorological dispersion conditions (unfavorable to dispersion) which will not occur more than 5 percent of the time.
>
> **Neutral meteorology:** Pasquill Stability Class D, conditions which neither enhance nor inhibit vertical diffusion in the atmosphere.
>
> **Stable meteorology:** Pasquill Stability Class F, moderately stable conditions; the atmospheric condition existing when the temperature of the air rises rather than falls with altitude. It allows for little or no vertical air movement.

millirem One thousandth of a rem (see rem).

mitigation Those actions that avoid impacts altogether, minimize impacts, rectify impacts, reduce or eliminate impacts, or compensate for the impact.

mixed waste Waste that contains both hazardous waste under RCRA and source, special nuclear, or by-product material subject to the *Atomic Energy Act* of 1954.

mixing depth The height to which pollutants can freely disperse, above which inversion conditions exist.

moment magnitude A measure of earthquake size. The rigidity of the rock times the area of faulting times the amount of slip.

M_s Surface wave magnitude; motion is restricted to near the ground surface. Such waves correspond to ripples of water that travel across a lake. Most of the wave motion is located at the outside surface itself; and, as the depth below this surface increases, wave displacements become less and less.

nanocurie One billionth of a curie (see curie).

***National Environmental Policy Act* of 1969 (NEPA)** A law that requires Federal agencies to include in their decisionmaking processes appropriate and careful consideration of all potential environmental effects of proposed actions, analyses of their alternatives, and measures to avoid or minimize adverse effects of a proposed action that have the potential for significantly affecting the environment. These analyses are presented in either an environmental assessment or in an environmental impact statement.

National Oceanic and Atmospheric Administration A Federal agency that collects and analyzes information on the weather. The National Oceanic and Atmospheric Administration has an office at INEEL for collecting weather information. The National Oceanic and Atmospheric Administration also is involved with the environmental monitoring programs at INEEL.

National Priorities List A formal listing of the nation's worst hazardous waste sites, as established by CERCLA that have been identified for remediation.

natural phenomena accidents Accidents that are initiated by phenomena such as earthquakes, tornadoes, floods, and so forth.

near-surface disposal Disposal in the uppermost portion of the earth, approximately 30 meters. Near-surface disposal includes disposal in engineered facilities that may be built totally or partially above-grade provided that such facilities have protective earthen covers. A near-surface disposal facility is not considered a geologic repository.

nearest public access For facility accident analyses, the location of the nearest public highway where members of the public could be present.

new facilities Any facility that is not an existing facility or an existing hazardous waste management facility.

nitrogen oxides (NO_x) Gases formed in great part from atmospheric nitrogen and oxygen when combustion takes place under conditions of high temperature and high pressure; a criteria air pollutant. Two major nitrogen oxides, nitric oxide (NO) and nitrogen dioxide (NO_2), are important airborne contaminants. Oxides of nitrogen are considered precursor to the formation of ozone (photochemical smog).

nonattainment area Any area which has been designated as not meeting (or contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

noncertifiable waste Waste that is not able to meet the waste acceptance criteria for the intended treatment, storage, or disposal facility; transportation requirements; or waste that may be too difficult to characterize adequately to prove that it meets the applicable criteria.

nonreactor nuclear facility Those activities or operations that involve radioactive and/or fissionable materials in such form and quantity that a nuclear hazard potentially exists to the employees or to the general public. These activities or operations include producing, processing, or storing radioactive liquid or solid waste, fissionable materials, or tritium; conducting separation operations; conducting inspections of irradiated materials, fuel fabrication, decontamination, or recovery operations; conducting fuel enrichment operations; or performing environmental remediation or waste management activities involving radioactive materials.

nonhazardous Waste that does not pose risks to human health and the environment. Industrial/commercial waste is an example (see hazardous waste).

normal conditions All activities associated with a facility mission, whether operation, maintenance, storage, and so forth, which are carried out within a defined envelope. This envelope can be design process conditions, performance in accordance with procedure, and so forth.

normal operation All normal conditions and those abnormal conditions that frequency estimation techniques indicate occur with a frequency greater than 0.1 events per year.

NO_x A generic term used to describe the oxides of nitrogen (see nitrogen oxides).

nuclear criticality A self-sustaining chain reaction that releases neutrons and energy and generates radioactive by-product material.

nuclear fuel Materials that are fissionable and can be used in nuclear reactors to make energy.

nuclide A general term referring to all known isotopes, both stable (279) and unstable (about 5,000), of the chemical elements.

off-link doses Doses to members of the public within 800 meters (2,625 feet) of a road or railway.

offsite facility A facility located at a different site or location than the shipper.

offsite population For facility accident analyses, the collective sum of individuals located within an 80-kilometer (50-mile) radius of the INEEL facility and within the path of the plume with the wind blowing in the most populous direction. For routine radionuclide emissions, the collective population residing within an 80-kilometer radius for which an annual dose assessment is performed (includes all directions).

on-link doses Doses to members of the public sharing a road or railway.

onsite The same or geographically contiguous property that may be divided by public or private right-of-way, provided the entrance and exit between the properties is at a cross-roads intersection, and access is by crossing as opposed to going along the right-of-way. Non-contiguous properties owned by the same person

but connected by a right-of-way that he/she controls and to which the public does not have access is also considered onsite property.

onsite facilities Buildings and other structures, their functional systems and equipment, and other fixed systems and equipment installed onsite.

operable unit A discrete portion of a Waste Area Group consisting of one or many release sites considered together for assessment and cleanup activities. The primary criteria for placement of release sites into an operable unit include geographic proximity, similarity of waste characteristics and site types, and the possibilities for economy of scale.

operator The organization that operates a facility.

organic compounds Chemicals containing mainly carbon, hydrogen, and oxygen. Petroleum products, petroleum-based solvents, and pesticides are examples of organic compounds. Exposure to some organic compounds can produce toxic effects on body tissues and processes.

orphan wastes Wastes in a classification that currently have no long-term disposal scheduled or anticipated. An example of an orphan waste is low-level mixed waste. Orphan waste is probably not radioactive enough to qualify for disposal at the Waste Isolation Pilot Plant and it cannot be disposed of onsite because it has hazardous components.

orthophosphate The phosphate ions including H_2O_4, HPO_4^{2-}, and PO_4^{3-}.

overpack A secondary container placed around a primary container to provide additional protection to or from the contents of a waste package or enclose a damaged primary container.

package The packaging plus its contents.

packaging A receptacle and any other components or materials necessary for the receptacle to perform its required containment function.

particulate matter Any material, except water in uncombined form, that exists as a liquid or a solid at standard conditions (see also PM-10).

passivation The process of making metals inactive or less chemically reactive. For example, to passivate the surface of steel by chemical treatment.

perched water A discontinuous saturated water body above the water table with unsaturated conditions existing both above and below.

perennial surface water A stream, creek, lake, pond, or river which contains water year round.

performance assessment A systematic analysis of the potential risks posed by waste management systems to the public and environment and a comparison of those risks to established performance objectives.

performance assessment limited waste Special-case waste comparable to greater-than-Class-C waste but generated by the government. This is a low-level waste but has unique characteristics that make it unsuitable for shallow land burial.

performance-assessment-limited alpha waste Any alpha-contaminated waste, not meeting the definition of transuranic waste, that cannot be disposed of by shallow land burial, based on a documented site-specific performance assessment approved by the DOE Operations Office and Headquarters.

performance objectives Parameters within which a facility must perform to be considered acceptable.

permeability The degree of ease with which water can pass through a rock or soil.

person-rem A unit of collective radiation dose applied to populations or groups of individuals (see collective dose).

playa The shallow central basin of a desert plain in which water gathers and then evaporates.

Pleistocene The older of the two epochs of the Quaternary period (2 million to 10,000 years ago).

plume The three-dimensional area containing measurable concentrations of a compound or element which has migrated from its source point.

PM-10 All particulate matter in the ambient air with an aerodynamic diameter less than or equal to a nominal ten (10) micrometers.

pollutant migration The movement of a contaminant away from its initial source.

pollution prevention The use of any process, practice, or product that reduces or eliminates the generation and release of pollutants, hazardous substances, contaminants, and wastes, including those that protect natural resources through conservation or more efficient utilization.

polychlorinated biphenyls (PCBs) A class of chemical substances formerly manufactured as an insulating fluid in electrical equipment that is highly toxic to aquatic life. In the environment, PCBs exhibit many of the characteristics of dichloro diphenyl trichloroethane (DDT); they persist in the environment for a long time and accumulate in animals.

population dose The collective dose to the offsite population (usually within 80 kilometers of the facility being assessed).

porosity (n) Porosity is an index of the relative pore volume. It is the total unit volume of the soil or rock divided into the void volume.

preferential pathways Preferred pathways for fluid flow. They are dependent upon the moisture content of the porous media.

pressurized water reactor A nuclear power reactor that uses water under pressure as a coolant. The water boiled to generate steam is in a separate system.

primary ambient air quality standard That air quality that, allowing an adequate margin of safety, is requisite to protect the public health. National primary ambient air quality standards have been established for criteria pollutants (particulate matter, carbon monoxide, sulfur dioxide, nitrogen dioxide, ozone, and lead).

probable maximum flood The largest flood for which there is any reasonable expectancy in a specific area. The probable maximum flood is normally several times larger than the largest flood of record.

process knowledge The set of information that is used by trained and qualified individuals who are cognizant of the origin, use, and location of waste-generating materials and processes in sufficient detail so as to certify the identity of the waste.

processing (of spent nuclear fuel) Applying a chemical or physical process designed to alter the characteristics of a spent nuclear fuel matrix.

public Anyone outside the DOE site boundary at the time of an accident or during normal operation. With respect to accidents analyzed in this EIS, anyone outside the DOE site boundary at the time of an accident.

quality assurance All those planned and systematic actions necessary to provide adequate confidence that a facility, structure, system, or components will perform satisfactorily and safely in service. Quality assurance includes quality control, which is all those actions necessary to control and verify the features and characteristics of a material, process, product, or service to specified requirements.

quality factor The modifying factor that is used to derive dose equivalent from absorbed dose.

Quaternary The younger of the two geologic periods in the Cenozoic Era (2 million years ago to the present). Quaternary is subdivided into the Pleistocene and Holocene epochs.

rad The special unit of absorbed dose. One rad is equal to an absorbed dose of 100 ergs/gram.

radiation (ionizing radiation) Alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions. Radiation, as it is used in this environmental impact statement, does not include nonionizing radiation, such as radio- or microwaves, or visible, infrared, or ultraviolet light.

radiation worker A worker who is occupationally exposed to ionizing radiation and receives specialized training and radiation monitoring devices to work in such circumstances.

radioactive waste Waste that is managed for its radioactive content.
radioactivity The property or characteristic of material to spontaneously "disintegrate" with the emission of energy in the form of radiation. The unit of radioactivity is the curie (or becquerel).

radioisotope An unstable isotope, of an element, that decays or disintegrates spontaneously, emitting radiation. Approximately 5,000 natural and artificial radioisotopes have been identified.

radiological survey The evaluation of the radiation hazards accompanying the production, use, or existence of radioactive materials under a specific set of conditions. Such evaluation customarily includes a physical survey of the disposition of materials and equipment, measurements or estimates of the levels of radiation that may be involved, and a sufficient knowledge of processes affecting these materials to predict hazards resulting from unexpected or possible changes in materials or equipment.

Radiological and Environmental Sciences Laboratory A facility involved in environmental monitoring of INEEL onsite and offsite radiation and research on its effects.

radionuclide See radioisotope.

RCRA See *Resource Conservation and Recovery Act*.

RCRA accumulation point There are two types of accumulation areas allowed under RCRA:

> **Satellite Accumulation:** Locations where hazardous waste generators are allowed to accumulate waste at or near the point of generation. Generators may accumulate up to 55 gallons of hazardous waste or one quart of acutely hazardous waste at or near the point of generation. Upon reaching 55 gallons, the generator has 72 hours to move the hazardous waste to either a temporary accumulation area or a permitted facility.
>
> **Temporary Accumulation Areas:** Under RCRA, the location where hazardous waste may be stored by a generator without a RCRA permit, temporary accumulation areas are limited by the amount of time they can store a hazardous waste. Generators may store hazardous wastes for up to 90 days without a permit if the generator complies with other safety and storage requirements, including a personnel training plan, a contingency plan, and an emergency preparedness and response plan.

RCRA interim status facility Hazardous waste management facilities (that is, treatment, storage, or disposal facilities) subject to RCRA requirements that were in existence on the effective date of regulations are considered to have been issued a permit on an interim basis as long as they have met notification and permit application submission requirements. Such facilities are required to meet interim status standards until they have been issued a final permit or until their interim status is withdrawn.

RCRA storage A facility used to store RCRA hazardous waste for greater than 90 days. To be in compliance with the regulatory requirements of RCRA, the facility must meet both documentation requirements (for example, contingency and waste analysis plans) and physical requirements (for example, specific aisle widths and separation of incompatible wastes).

reclassified low-level waste See alpha low-level waste.

Record of Decision (ROD) A public document that records the final decision(s) concerning a proposed action. The Record of Decision is based in whole or in part on information and technical analysis generated either during the CERCLA process or the NEPA process, both of which take into consideration public comments and community concerns.

recycling Recycling techniques are characterized as use, reuse, and reclamation techniques (resource recovery). Use or reuse involves the return of a potential waste material either to the originating process as a substitute for an input material or to another process as an input material. Reclamation is the recovery of a useful or valuable material from a waste stream. Recycling allows potential waste materials to be put to a beneficial use rather than going to treatment, storage, or disposal.

regulated substances A general term used to refer to materials other than radionuclides that are regulated by Federal, State, (or possibly local) requirements.

release site A location at which a hazardous, radioactive, or mixed waste release has occurred or is suspected to have occurred. It is usually associated with an area where these wastes, or substances contaminated with them, have been used, treated, stored, and/or disposed of.

rem The dosage of an ionizing radiation that will cause the same biological effect as one roentgen of X-ray or gamma-ray exposure.

remedial investigation The CERCLA process of determining the extent of hazardous substance contamination and, as appropriate, conducting treatability investigations. The remedial investigation provides the site-specific information for the feasibility study.

remediation Process of remedying a site where a hazardous substance release has occurred.

remote-handled waste Packaged waste whose external surface dose rate exceeds 200 millirem per hour.

remote handling The handling of wastes from a distance so as to protect human operators from unnecessary exposure.

repository A permanent deep geologic disposal facility for high-level or transuranic wastes and spent nuclear fuel.

representative sample A sample of a universe or whole (for example, waste pile, lagoon, groundwater) that can be expected to exhibit the average properties of the universe or whole.

reprocessing (of spent nuclear fuel) Processing of reactor irradiated nuclear material (primarily spent nuclear fuel) to recover fissile and fertile material, in order to recycle such materials primarily for defense programs. Historically, reprocessing has involved aqueous chemical separations of elements (typically uranium or plutonium) from undesired elements in the fuel.

research reactor A nuclear reactor used for research and development.

***Resource Conservation and Recovery Act* (RCRA)** A Federal law addressing the management of waste. Subtitle C of the law addresses hazardous waste under which a waste must either be "listed" on one of EPA's hazardous waste lists or meet one of EPA's four hazardous characteristics of ignitability, corrosivity, reactivity, or toxicity, as measured using the toxicity characterization leaching procedure. Cradle-to-grave management of wastes classified as RCRA hazardous wastes must meet stringent guidelines for environmental protection as required by the law. These guidelines include regulation of transportation, treatment, storage, and disposal of RCRA-defined hazardous waste. Subtitle D of the law addresses the management of nonhazardous, nonradioactive, solid waste, such as municipal wastes.

retrieval The process of recovering wastes that have been stored or disposed of onsite so they may be appropriately characterized, treated, and disposed of.

rhyolite A very acid volcanic rock that is the lava form of granite.

risk Quantitative expression of possible loss that considers both the probability that a hazard causes harm and the consequences of that event.

roentgen A unit of exposure to ionizing radiation. It is that amount of gamma or X-rays required to produce ions carrying one electrostatic unit of electrical charge in one cubic centimeter of dry air under standard conditions.

safe and secure Storage with design and operational features that maintain the integrity of the fuel cladding, prevent criticalities, preclude diversion, and so forth. Safe and secure storage would generally meet the intent of DOE Orders, but waivers may be required and granted for some requirements on a case-by-case basis where warranted.

safety analysis report A report, prepared in accordance with DOE Orders 5481.1B and 5480.23, that summarizes the hazards associated with the operation of a particular facility and defines minimum safety requirements.

safety class structures, systems, and components Those systems, structures, or components whose functioning is necessary to keep maximally exposed offsite individual exposure below a dose of 25 rem or an Emergency Response Planning Guideline-2 dosage for design basis accidents and evaluation basis accidents.

sanitary landfill A facility for the disposal of solid waste where there is no reasonable probability of adverse effects on health or the environment from disposal of the solid waste at the facility. This facility is not an open dump and is not for disposal of hazardous waste.

sanitary waste Liquid or solid wastes that are generated as a result of routine operations of a facility and are not considered hazardous or radioactive.

satellite accumulation See RCRA accumulation point.

saturated zone That part of the earth's crust in which all naturally occurring voids are filled with water.

scaling factor A multiplier that allows the inference of one radionuclide concentration from another that is more easily measured.

scientific notation A notation adopted by the scientific community to deal with very large and very small numbers. The notation calls for moving the decimal point to the right or left so that only one number above zero is to the left of the decimal point. Scientific notation uses a number times 10 and either a positive or negative exponent to show how many places to the left or right the decimal place has been moved. For example, in scientific notation, 120,000 would be written as 1.2×10^{5}, and 0.000012 would be written as 1.2×10^{-5}. In a variation of scientific notation often used in computer printouts, the multiplication sign and number 10 are replaced by the letter E. The above numbers would be written as 1.2E5 (or 1.2E+05) and 1.2E-5, respectively.

scrubber A device that uses a liquid spray to remove aerosol and gaseous pollutants from an airstream. The gases are removed either by absorption or chemical reaction. Solid and liquid particulates are removed through contact with the spray.

secondary ambient air quality standard That air quality which is requisite to protect the public welfare from any known or anticipated adverse effects associated with the presence of air pollutants in the ambient air.

secondary emissions Emissions which would occur as a result of the construction, modification, or operation of a stationary source or facility but do not come from the stationary source or facility itself.

sedimentary interbeds Rock layers composed of materials, such as sand or gravel, which are derived from the breakdown of various rocks that are layered between other rock types.

segregation The process of separating (or keeping separate) individual waste types and/or forms in order to facilitate their cost-effective treatment and storage or disposal.

seismicity The phenomenon of earth movements; seismic activity. Seismicity is related to the location, size, and rate of occurrence of earthquakes.

site inspection The CERCLA process to acquire the necessary data to confirm the existence of environmental contamination and to assess the associated potential risks to human health, welfare and the environment. The data collected must be sufficient to support the decision either for continuing with a remedial investigation/feasibility study or for removing the site from further investigation through a decision document.

site waste management organization The functional organization at a DOE site whose responsibility it is to manage waste generated by that site's operations.

sizing The process of reducing the size of various types of solid wastes by compaction, melting, or mechanical reduction.

small quantity generator A generator who generates less than 1,000 kilograms of hazardous waste in a calendar month.

sodium-bearing waste Liquid radioactive waste generated from decontamination of process equipment and other miscellaneous activities at the Idaho Chemical Processing Plant.

sole source aquifer A designation granted by the U.S. Environmental Protection Agency when groundwater from a specific aquifer supplies more than 50 percent of the drinking water for the area overlying the aquifer. Sole source aquifers have no alternative source or combination of sources which could physically, legally, and economically supply all those who obtain their drinking water from the aquifer. Sole source aquifers are protected from federally financially assisted activities determined to be potentially unhealthy for the aquifer.

solid waste Any garbage, refuse, or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities. It does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges, which are point sources subject to permits under Section 402 of the *Federal Water Pollution Control Act*, as amended, or source, special nuclear, or by-

product material as defined by the *Atomic Energy Act* of 1954, as amended [Public Law 94-580, 1004(27) RCRA].

solid waste management units Any site, excluding Land Disposal Units, that received or handled solid waste, whether or not hazardous constituents were involved.

solvents Liquid chemicals, usually organic compounds, that are capable of dissolving another substance. Exposure to some organic solvents can produce toxic effects on body tissues and processes.

source material (a) Uranium, thorium, or any other material that is determined by the Nuclear Regulatory Commission pursuant to the provisions of the *Atomic Energy Act* of 1954, Section 61, to be source material; or (b) ores containing one or more of the foregoing materials, in such concentration as the Nuclear Regulatory Commission may by regulation determine from time-to-time [*Atomic Energy Act* 11(z)]. Source material is exempt from regulation under RCRA.

source term The type and quantity of pollutants emitted to air or other media from a specific source or group of sources.

SO_x A generic term used to describe the oxides of sulfur. Air emission of oxides of sulfur contribute to sulfur dioxide concentrations, for which there is an ambient air quality standard; contributes to the formation of acidic precipitation (see sulfur oxides).

special case waste Special case waste is defined in this EIS as those wastes which are not suitable for direct treatment via the primary AMWTP facility supercompaction, macroencapsulation, incineration, and vitrification treatment processes. Special case waste includes wastes which may require additional characterization and/or pretreatment (e.g., neutralization and/or absorption) prior to processing via incineration/vitrification or final treatment (e.g., amalgamation to meet land disposal restrictions [LDR] treatment standards) prior to disposal. Some examples of special case waste are: Containers of liquids (i.e., containerized liquids) removed from the original waste containers, and Free liquids (i.e., non-containerized liquids) removed from the original waste containers and containerized prior to transfer to the special case waste glovebox.

spent nuclear fuel Fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated. For the purposes of this EIS, spent nuclear fuel also includes uranium/neptunium target materials, blanket subassemblies, pieces of fuel, and debris.

stabilized waste (stability) Treatment or packaging of a waste stream that is intended to ensure that the waste does not structurally degrade and affect overall stability of the disposal site through slumping, collapse, or other types of failures that will lead to water infiltration into the waste. Stabilization is also a factor in limiting exposure to an inadvertent intruder since it provides a recognizable and nondispersible waste.

stable (Atmospheric) low potential for vertical mixing. Also, nonradioactive.

stakeholder Any person or organization with an interest in or affected by DOE activities. Stakeholders may include representatives from Federal agencies, State agencies, Congress, Native American Tribes, unions, educational groups, industry, environmental groups, other groups, and members of the general public.

stationary source Any building, structure, emissions unit, or installation which emits or may emit any air pollutant.

storage The collection and containment of waste or spent nuclear fuel in such a manner as not to constitute disposal of the waste or spent nuclear fuel for the purposes of awaiting treatment or disposal capacity (that is, not short-term accumulation).

storativity Storativity of a saturated aquifer is defined as the volume of water that a unit volume of the aquifer releases from storage under a unit decline in hydraulic head.

sulfur oxides Pungent, colorless gases formed primarily by the combustion of fossil fuels; considered major air pollutants, sulfur oxides may damage the respiratory tract as well as vegetation (see SO_x).

subsurface The area below the land surface (including the vadose zone and aquifers).

superfund The common name used CERCLA and its amendments.

superfund site Any site that has been listed on the National Priority List because it has been identified by the EPA as having the potential to harm human health and the environment. Study and cleanup activities at these sites are regulated by the CERCLA. "Superfund" sites at Federal facilities must be cleaned up by the operating agency (lead agency) under the oversight of the EPA and other parties to a Federal Facility Agreement.

surface dose The radiological dose emanating from a container of material (waste), usually expressed as a measurement at contact and at one meter.

tank A stationary device designed to contain an accumulation of waste, which is constructed primarily of non-earthen materials (for example, wood, concrete, steel, plastic) which provide structural support.

technical safety requirement Those requirements that define the conditions, safe boundaries, and the management or administrative controls necessary to ensure the safe operation of a nuclear facility and reduce the potential risk to the public and co-located workers from uncontrolled release of radioactive materials, radiation exposure due to inadvertent criticality, or uncontrolled release of nonradiological material or energy hazards.

tectonics Geological structural features as a whole, or a branch of geology concerned with the structure of the crust of a planet and especially with the formation of folds and faults in it.

tephra Solid material ejected into the air during a volcanic eruption, including volcanic dust, ash, and cinders.

Tertiary The older of the two geologic periods in the Cenozoic Era (63 to 2 million years ago).

thermal treatment The treatment of hazardous waste in a device which uses elevated temperatures as the primary means to change the chemical, physical, or biological character or composition of the hazardous waste. Examples of thermal treatment processes are incineration, molten salt, pyrolysis, calcination, wet air oxidation, and microwave discharge.

total effective dose equivalent The sum of the external dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures).

toxic air pollutant Under the Idaho Air Quality Control Regulations, any air pollutant that is determined by the Idaho Department of Health and Welfare to be, by its nature, toxic to human or animal life or vegetation.

toxic air pollutant reasonably available control technology An emission standard based on the lowest emission of toxic air pollutants that a particular source is capable of meeting by the application of control technology that is reasonably available, as determined by the Idaho Department of Health and Welfare, considering technological and economic feasibility.

toxicological hazard Any material defined in 40 CFR 355 Appendix A as an extremely hazardous substance.

transient A change in the reactor coolant system temperature and/or pressure. Transients can be caused by adding or removing neutron poisons, by increasing or decreasing the electrical load on the turbine generator, or by accident conditions.

transmissivity The rate at which water of a prevailing density and viscosity is transmitted through a unit width of an aquifer under a unit hydraulic gradient. It is a function of properties of the liquid, the porous media, and the thickness of the porous media.

transuranic waste Waste containing more than 100 nanocuries of alpha-emitting transuranic isotopes with half-lives greater than 20 years per gram of waste, except for (a) high-level radioactive waste; (b) waste that DOE has determined, with the concurrence of the EPA Administrator, does not need the degree of isolation required by 40 CFR 191; or (c) waste that the U.S. Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with 10 CFR 61.

transuranium radionuclide Any radionuclide having an atomic number greater than 92.

treatment Any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to render such waste nonhazardous, safer for transport, amenable for recovery, amenable for storage, or reduced in volume. Such term includes any activity or processing designed to change the physical form or chemical composition of hazardous waste so as to render it nonhazardous.

treatment facility Land area, structures, and/or equipment used for the treatment of waste or spent nuclear fuel.

ultimate disposition The final step in which a material is either processed for some use or disposed of.

United States Geological Survey (USGS) A Federal agency that collects and analyzes information on geology and geological resources including groundwater and surface water.

vadose zone The zone between the land surface and the water table. Saturated bodies, such as perched groundwater, may exist in the vadose zone. Also called the zone of aeration and the unsaturated zone.

vapor vacuum extraction A technology that applies a vacuum to a well field to remove volatile organic contamination from soils and permeable rock layers in that well field.

vitrification The process of immobilizing waste material that results in a glass-like solid.

volatile organic compound (VOC) Chemical containing mainly carbon, hydrogen, and oxygen that readily evaporates at ambient temperature. Exposure to some organic compounds can produce toxic effects on body tissue and processes. VOCs are regulated as precursors to the criteria air pollutant ozone.

Volcanic Rift Zones (VRZs) Linear belts of basaltic vents marked by open fissures, monoclines, and small normal faults. Volcanic rift zones were produced during the propagation of vertical molten basaltic dikes that fed surface eruptions.

vulnerabilities Conditions or weaknesses that may lead to radiation exposure to the public, unnecessary or increased exposure to the workers, or release of radioactive materials to the environment. For example, some DOE facilities have had leakage from spent fuel storage pools, excessive corrosion of fuel causing increased radiation levels in the pool, or degradation of handling systems. Vulnerabilities are also caused by loss of institutional controls, such as cessation of facility funding or reductions in facility maintenance and control.

waste Any waste defined as solid waste by 40 CFR 261.2. Solid waste excluded from regulation by RCRA is still considered a waste. This includes wastes of all types (solid, liquid, gaseous, hazardous, radioactive, sanitary, and so forth).

waste acceptance criteria (WAC) The requirements specifying the characteristics of waste and waste packaging acceptable to a waste receiving facility; and, the documents and processes the generator needs to certify that waste meets applicable requirements.

waste acceptance specifications The functions to be performed and the technical requirements for a Waste Acceptance System for accepting spent nuclear fuel and high-level waste into the Civilian Radioactive Waste Management System according to the *Waste Acceptance System Requirements Document* (DOE/RW-0352P, January 1993, Office of Civilian Radioactive Waste Management).

waste analysis plan A plan that specifies the parameters for which each waste will be analyzed. These include a testing and sampling method(s), timing, and the rationale of the generator or the facility operator responsible for treatment, storage, or disposal. It ensures that accurate waste type and composition determinations are made as required by law, regulation, or good judgment.

waste area group Ten groupings of release sites under the INEL Federal Facility Agreement and Consent Order 5. Groupings are for efficiency in managing the assessment and cleanup process. Nine of these waste area groups are associated with specific facilities, and the tenth is associated with the remaining miscellaneous facilities. Each waste area group may be broken down into individual operable units.

waste certification A process by which a waste generator certifies that a given waste or waste stream meets the waste acceptance criteria of the facility to which the generator intends to transport waste for treatment, storage, or disposal. Certification is accomplished by a combination of waste characterization, documentation, quality assurance, and periodic audits of the certification program.

waste certification plan A plan or collection of plans used by a generator to specify the means by which waste is prepared and certified to meet applicable waste acceptance and safety criteria; hazardous and radiological waste handling, treatment, transportation, and packaging regulations; and other local or site requirements. Certification plans result in developing the information that the receiving facility needs to confirm the suitability of waste for acceptance.

waste certification program A systematic approach to ensure that waste characterization is conducted in a manner to provide reasonable assurance that the receiving facility's waste acceptance criteria are met. A waste certification program consists of all the functional elements, organizations, and activities necessary to provide reasonable assurance that waste characterization is done with sufficient accuracy to ensure proper handling. These functions can be performed by various organizations.

waste characterization See characterization.

waste container A receptacle for waste, including any liner or shielding material that is intended to accompany the waste in disposal.

waste generation Any waste (after being declared a waste, see "waste") produced during a particular calendar year. This does not include waste produced in previous years that is being repacked, treated, or disposed of in the current calendar year. It does include any secondary waste (for example, clothing, gloves, waste from maintenance operations, and so forth) generated by treatment, storage, or disposal activities of previously generated wastes.

waste generator organization Any organization that is responsible for the individual generators of waste.

Waste Isolation Pilot Plant (WIPP) A facility near Carlsbad, New Mexico, authorized to demonstrate safe disposal of defense-generated transuranic waste in a deep geologic medium.

waste management The planning, coordination, and direction of those functions related to generation, handling, treatment, storage, transportation, and disposal of waste, as well as associated surveillance and maintenance activities.

waste management facility All contiguous land, structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of waste or spent nuclear fuel. A facility may consist of several treatment, storage, or disposal operational units (for example, one or more landfills, surface impoundments, or combinations of them).

waste management program A systematic approach to organize, direct, document, and assess activities associated with waste generation, treatment, storage, or disposal. A waste management program consists of all the functional elements, organizations, and activities that comprise the system needed to properly manage waste. These functions and activities can be performed by various organizations.

waste management systems assessment A systems assessment of the entire low-level waste management (or all of waste management) structure/program at a given site that considers treatment, storage, and disposal, as well as onsite and offsite points of generation with an emphasis on optimization of all aspects of the operations, including, but not limited to, protection of human health and the environment, regulatory compliance, and cost effectiveness.

waste minimization An action that economically avoids or reduces the generation of waste by source reduction, reducing the toxicity of hazardous waste, improving energy usage, or recycling. These actions will be consistent with the general goal of minimizing present and future threats to human health, safety, and the environment.

waste receiving facility A facility that formally accepts waste from a waste generator organization for treatment, storage, or disposal.

waste segregation The process of separating (or keeping separate) individual waste types and/or forms in order to facilitate their cost-effective treatment and storage or disposal.

waste stream A waste or group of wastes with similar physical form, radiological properties, EPA waste codes, or associated land disposal restriction treatment standards. It may be the result of one or more processes or operations.

waste type The waste types discussed in this EIS are high-level waste, transuranic waste, mixed low-level waste, low-level waste, hazardous waste, or nonhazardous waste.

water table The surface below which is saturated with water (an aquifer) and above which is not saturated with water (the vadose zone).

weathering The process by which rocks are broken down and decomposed by the physical and chemical actions of wind, rain, temperature change, plant colonization, and bacterial activity.

weighting factor (W_T) For an organ or tissue, (W_T) is the proportion of the risk of health effects (cancer fatalities) resulting from irradiation of that organ or tissue to the total risk of health effects (cancer fatalities) when the whole body is irradiated uniformly.

wet storage Storage of spent nuclear fuel in a pool of water, generally for the purposes of cooling and/or shielding.

zone of aeration See vadose zone.

zone of saturation That part of the earth's crust in which all voids are filled with water.